VA RESEARCH & DEVELOPMENT

TECHNOLOGY ASSESSMENT BRIEF

Positron Emission Tomography (PET) Update
Report #10

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Primary Objective: To track the published literature on PET and the use of PET in VHA since 1996.

Methods Used: Systematic review of published evidence of PET in diagnosing selected cancers (head and neck, breast, lung, solitary pulmonary nodules, and colorectal) and Alzheimer's disease, surveys and registry data from VHA PET centers.

Background: PET is a nuclear medicine imaging modality valued as a basic research tool with possible clinical applications. Traditional PET imaging uses cameras specifically designed for imaging positron-emitting radioisotopes. Gamma cameras modified for "PET-like" imaging may lower cost and offer more accessible alternatives to traditional PET. Both these PET systems have whole body scanning capability.

Key Findings: FDA's recent changes in regulation of PET drug products and expansion of Medicare coverage for PET in oncology helps fuel interest in clinical PET. VHA experience confirms the importance of PET as a basic research tool and shows a growing interest in its diagnostic capability. VHA is committed to supporting high quality outcome research and systematic data collection in PET. Existing evidence on either traditional or modified PET as a routine diagnostic test in selected applications is preliminary and methodologically flawed. Variations in study populations, imaging protocols and methods for defining disease on PET may limit the generalizability of findings across institutions. Systematic reviews from other agencies using similar methods underscore the deficiencies in the existing PET literature and the need for further clinical research.

Conclusions/Recommendations: VHA should continue its commitment to high quality patient care and rational resource management through its support of VHA PET centers, careful literature appraisal, and rigorous, prospective clinical research. Several cooperative trials, including a VHA Cooperative Study of PET in solitary pulmonary nodules, are ongoing or planned. Clinicians should await the results of these efforts before incorporating PET into routine diagnostic strategies. Creating an accessible central repository of existing and proposed, rigorously designed, cooperative trials of PET could help guide decision makers on the diffusion of PET into clinical care, as its usefulness and contribution to improved patient outcomes are appropriately evaluated.

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